

Artificial Intelligence & EU citizens/consumers

Hans Micklitz, Przemyslaw Palka

European University Institute

Giovanni Sartor

European University Institute, Cirsfid-University of Bologna

AI and the Internet: convergent evolutions

- Artificial intelligence reaches maturity
 - From human-made representations of knowledge and logical inference, to data-driven machine learning from examples and correlations
 - A unified paradigm: logic merges with statistics and neuro-science
- The Internet reaches maturity:
 - From an infrastructure for human communication to a global interconnected data infrastructure,
 - From access to passive information to active algorithmic intermediation



The Unreasonable Effectiveness of Data

Alon Halevy, Peter Norvig, and Fernando Pereira, Google



AI and the Internet: convergent successes

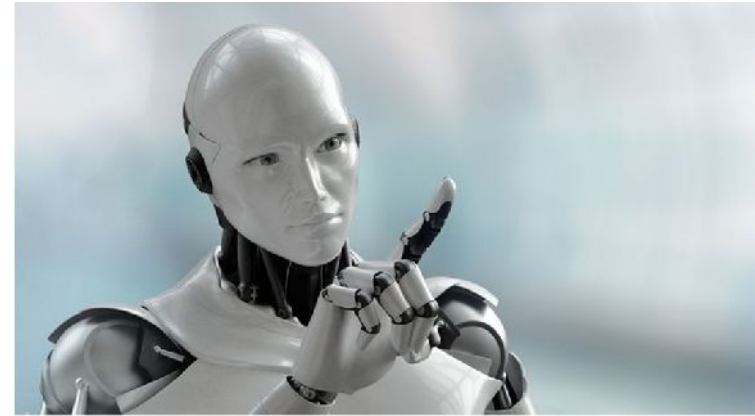
- AI: From toy examples to a host of real applications:
 - speech and image recognition, question-answering, recommendation, translation, planning, autonomous mobile robots, etc.
- The Internet: From message exchanges to the universal medium for any private and public services
 - shopping, banking, pay taxes, get benefits, information seeking, access to knowledge, social networking, etc.



Customers who bought this item also bought



What AI does and wants



- What AI does
 - apply learning methods to vast sets of examples to discover correlations
 - make classifications and predictions based on correlations and data
 - learn from past successes and failures in classifying and predicting
- What AI wants
 - the largest sets of examples
 - Including as much data as possible to discover new correlations

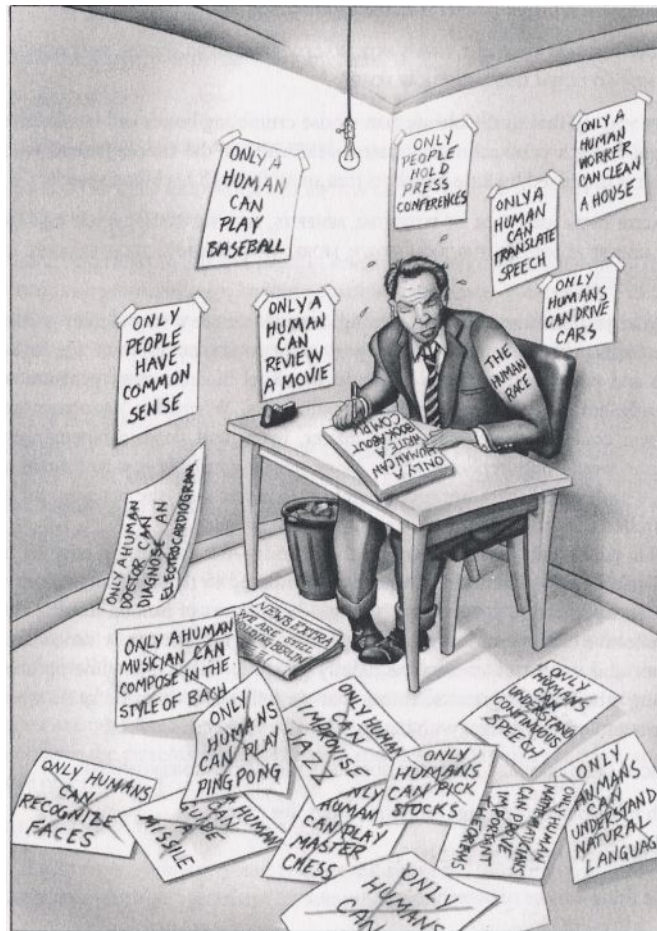
What the Internet does and want

- What the Internet does
 - enable human interaction
 - link billions of connected devices
 - collect all kind of data from physical and virtual environments
- What the Internet wants
 - services, providing intelligent and individualised solutions
 - the ability to extract useful knowledge from data



The great convergence

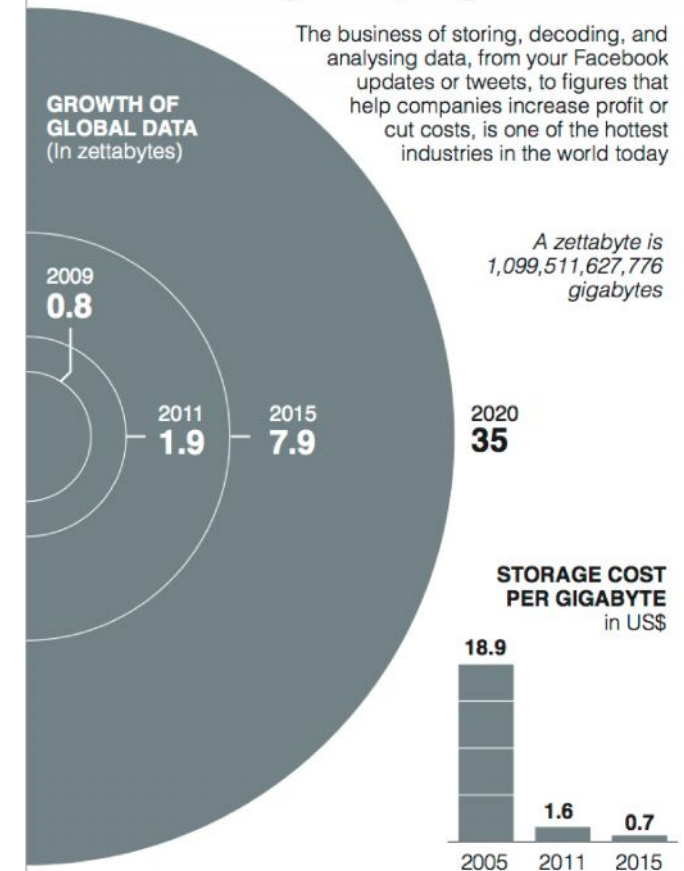
- The Internet provides AI with data
- AI enables the Internet to exploit the data



Big data, big business

The business of storing, decoding, and analysing data, from your Facebook updates or tweets, to figures that help companies increase profit or cut costs, is one of the hottest industries in the world today

A zettabyte is
1,099,511,627,776
gigabytes



Data-hungry AI meets data-abundant Internet



- Pervasive data collection
- Learning from big data
- Ubiquitous algorithmic intelligence



Admiral to price car insurance based on Facebook posts

Insurer's algorithm analyses social media usage to identify safe drivers in unprecedented use of customer data



Axiom: A Single View powered by AbiliTec



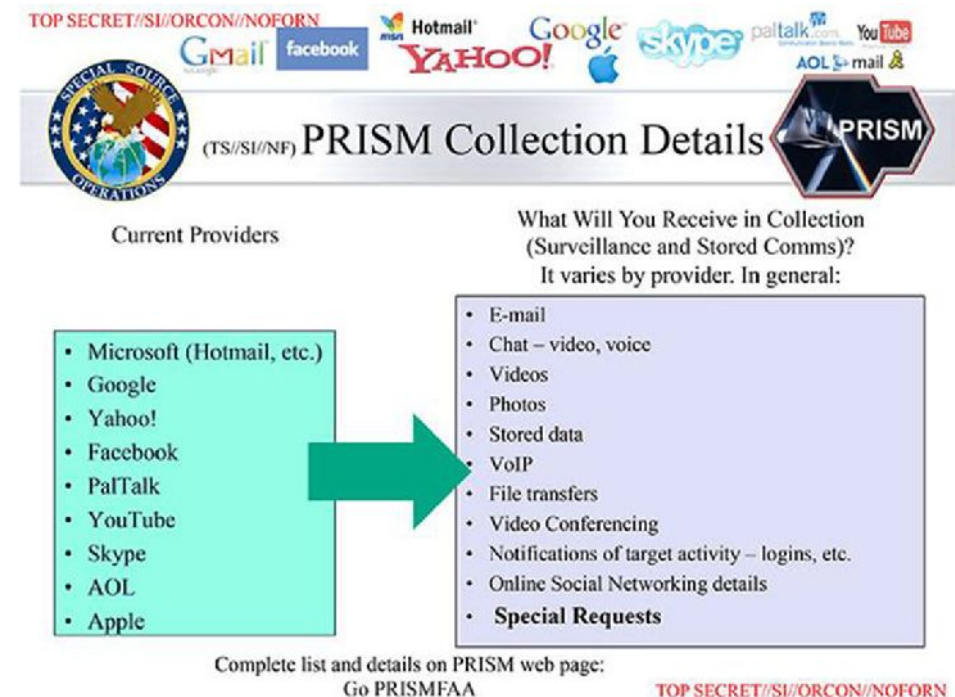
The Internet & AI: the promise

- overcome the information overload
- world-wide generation and distribution of knowledge and solutions
- economic efficiency, wealth creation
- cost-effective, individualised private and public services
- environmental-friendly management of utilities, traffic, logistics
- support for transparency, overcome bias and discrimination
- Etc.



The Internet + AI infrastructure: The catch

- Data collection/analysis/surveillance
- We cannot get out of the infrastructure
- We cannot effectively resist/contest influence and manipulation



Ethics and law violations by AI + Big Data

By 2018, 50% of violations of business ethics will be performed by algorithms

Gartner 2016

8:00 am ET
Nov 4, 2015

BIG DATA

WSJ.  TECH

At Uber, the Algorithm Is More Controlling Than the Real Boss

Working Anything but 9 to 5
Scheduling Technology Leaves Low-Income Parents With Hours of Chaos

Machine Bias

There's software used across the country to predict future criminals.
And it's biased against blacks.

TECHNOLOGY

Airbnb Adopts Rules to Fight Discrimination by Its Hosts

By KATIE BENNER SEPT. 8, 2016

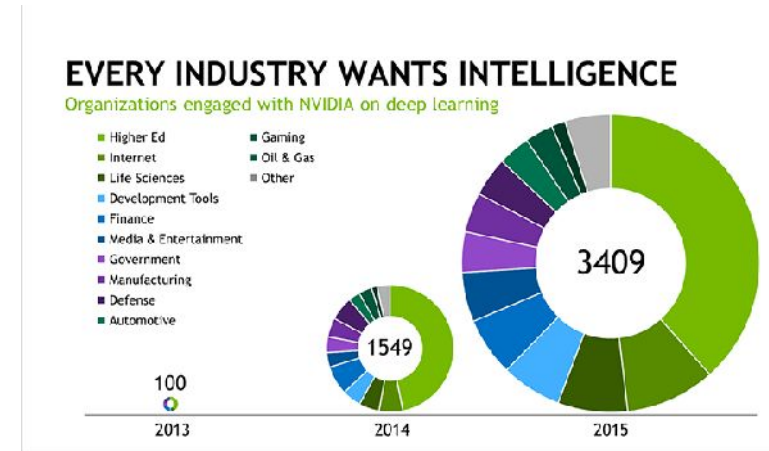
Blackflix

How Netflix's algorithm exposes technology's racial bias.

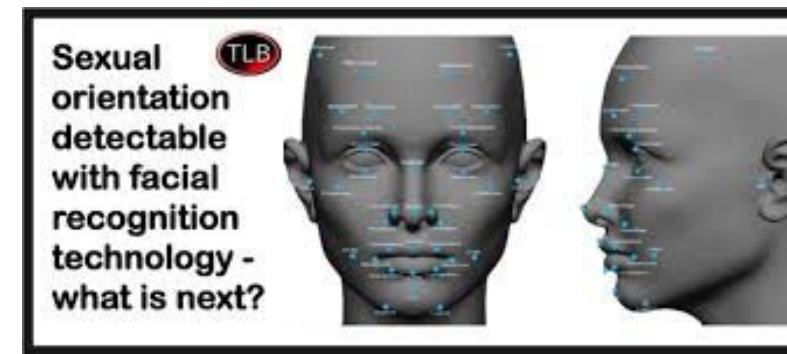
What drivers for AI

AI is in principle innocent, it only pursue the goals it is assigned

- By profit-making actors
 - Efficiency, cost reduction, better services
 - Anticipate/control/direct behaviour (to sell goods and services)
 - Two sided markets: capture user, to send them advertising, suggestions, and services, get revenue from advertisers-persuaders
- By governmental actors
 - Efficiency, costs reduction, better services
 - Anticipate/control/direct behaviour (for security and other purposes)



But impacts on individual and society are not always good!



BBC NEWS

Home | UK | World | Business | Politics | Tech | Science | Health | Family & Education | E

Technology

Google searches expose racial bias, says study of names

4 February 2013 | Technology

A study of Google searches has found "significant discrimination" in advert results depending on the perceived race of names searched for.

Harvard professor Latanya Sweeney said names typically associated with black people were more likely to produce ads related to criminal activity.

Prof Sweeney said technology could be used to counteract racial intolerance.

Top 5 Fake Election Stories by Facebook Engagement (three months before election)

- "Pope Francis Shocks World, Endorses Donald Trump for President, Releases Statement" (960,000, *Ending the Fed*)
- "WikiLeaks CONFIRMS Hillary Sold Weapons to ISIS... Then Drops Another BOMBHELL! Breaking News" (789,000, *The Political Insider*)
- "IT'S OVER: Hillary's ISIS Email Just Leaked & It's Worse Than Anyone Could Have Imagined" (754,000, *Ending the Fed*)
- "Just Read the Law: Hillary Is Disqualified From Holding Any Federal Office" (701,000, *Ending the Fed*)
- "FBI Agent Suspected in Hillary Email Leaks Found Dead in Apparent Murder-Suicide" (567,000, *Denver Guardian*)

ENGAGEMENT REFERS TO THE TOTAL NUMBER OF SHARES, REACTIONS, & COMMENTS FOR A PIECE OF CONTENT ON FACEBOOK. SOURCE: FACEBOOK DATA

TOP SECRET//SI//ORCON//NOFORN

Current Providers: Gmail, Facebook, Hotmail, Yahoo!, Google, Skype, paltalk.com, YouTube, AOL, mail

PRISM Collection Details

(TS//SI//NF)

Current Providers

What Will You Receive in Collection (Surveillance and Stored Comms)?
It varies by provider. In general:

- Microsoft (Hotmail, etc.)
- Google
- Yahoo!
- Facebook
- PalTalk
- YouTube
- Skype
- AOL
- Apple

- E-mail
- Chat – video, voice
- Videos
- Photos
- Stored data
- VoIP
- File transfers
- Video Conferencing
- Notifications of target activity – logins, etc.
- Online Social Networking details
- **Special Requests**

Complete list and details on PRISM web page:
Go PRISMFAA

TOP SECRET//SI//ORCON//NOFORN

PRO PUBLICA

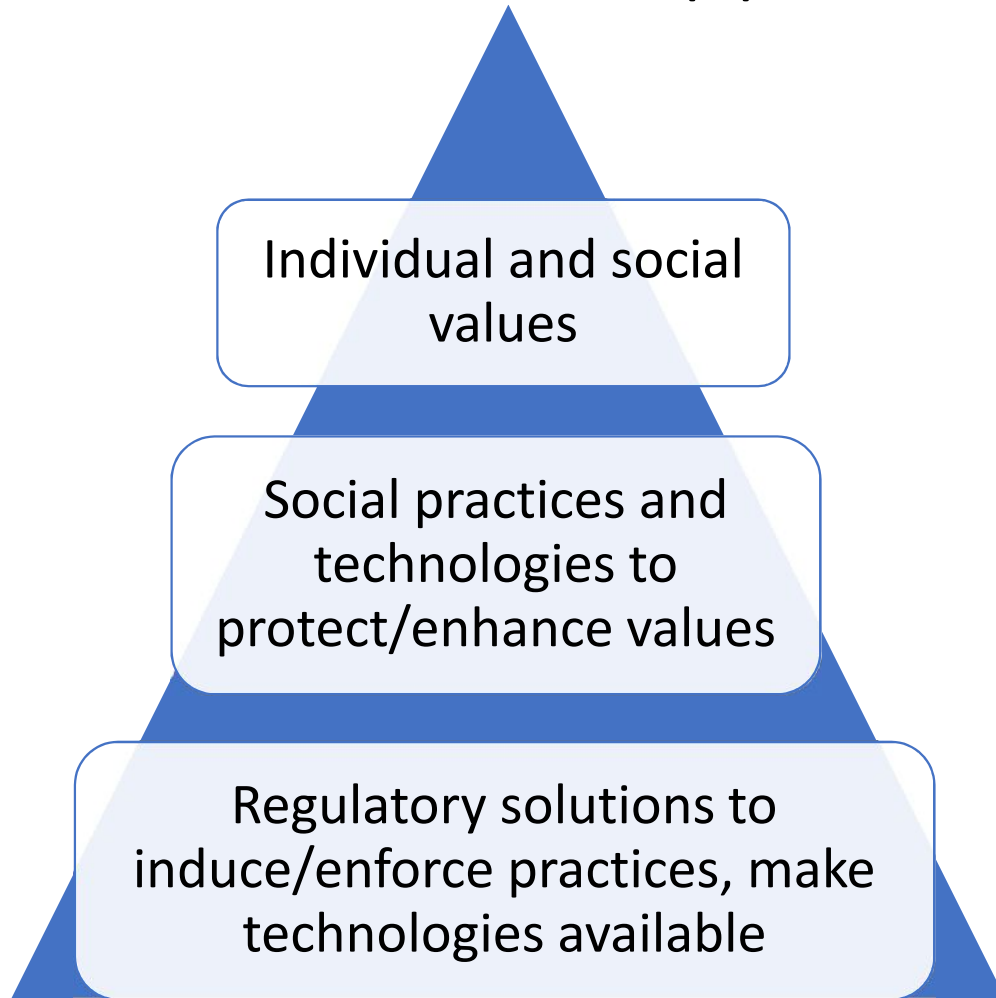
Machine Bias

There's software used across the country to predict future criminals. And it's biased against blacks.

by Julia Angwin, Jeff Larson, Surya Mattu and Lauren Kirchner, ProPublica

May 23, 2016

A value-based approach to regulating AI



A disrupting flow of innovations, generates multiple and diverse legal/social issues

How to proceed:

- Start from first principles
- Promote valuable socio-technical practices through tailored regulations and technologies
- Adapt existing legal frameworks, multi-layered regulation

What answers?

- Regulation

- Smart regulation to direct the use of AI by private and public organisations
 - <https://artsy.eui.eu/>

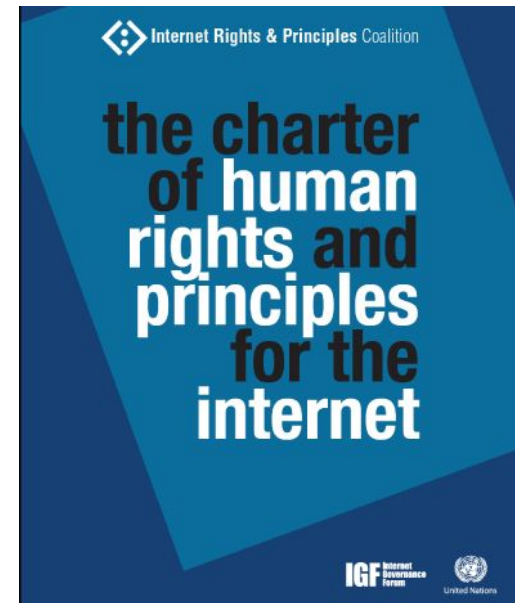
- Empowerment

- Make the power of AI available to citizen and civil society
 - <https://claudette.eui.eu/>



The legal-ethical framework: rights and social values

- Human/fundamental rights:
 - privacy, data protection, dignity, autonomy, freedom of expression, non-discrimination, equality, participation
- Social/economic goals:
 - welfare, competition, efficiency, science, art and culture, cooperation, civic dialogue, democracy



The legal framework: Multiple sectorial legal regimes and principles

- Data protection law
 - Principles: lawfulness, fairness and transparency; purpose limitation; data minimisation, accuracy; integrity and confidentiality; accountability; legitimate interest, data subject rights, etc.
- Consumer protection law
 - Principles: Protection of the weaker party, Regulated autonomy, Non-discrimination, etc.
- Competition law
 - Principles: fair competition, consumer welfare, etc.

Synergy and tensions: EDPS (Opinion 8/18)

- **Consumer** and **data protection law** share common goals of **redressing imbalances of informational and market power**
- Together with **competition law**, data protection and consumer protection need to work to ensure that people are **treated fairly**.

An issue: are personal data a tradable property?

- Can a consumer pay with his or her data? What about revocable consent under GDPR? What about privacy as a fundamental right?



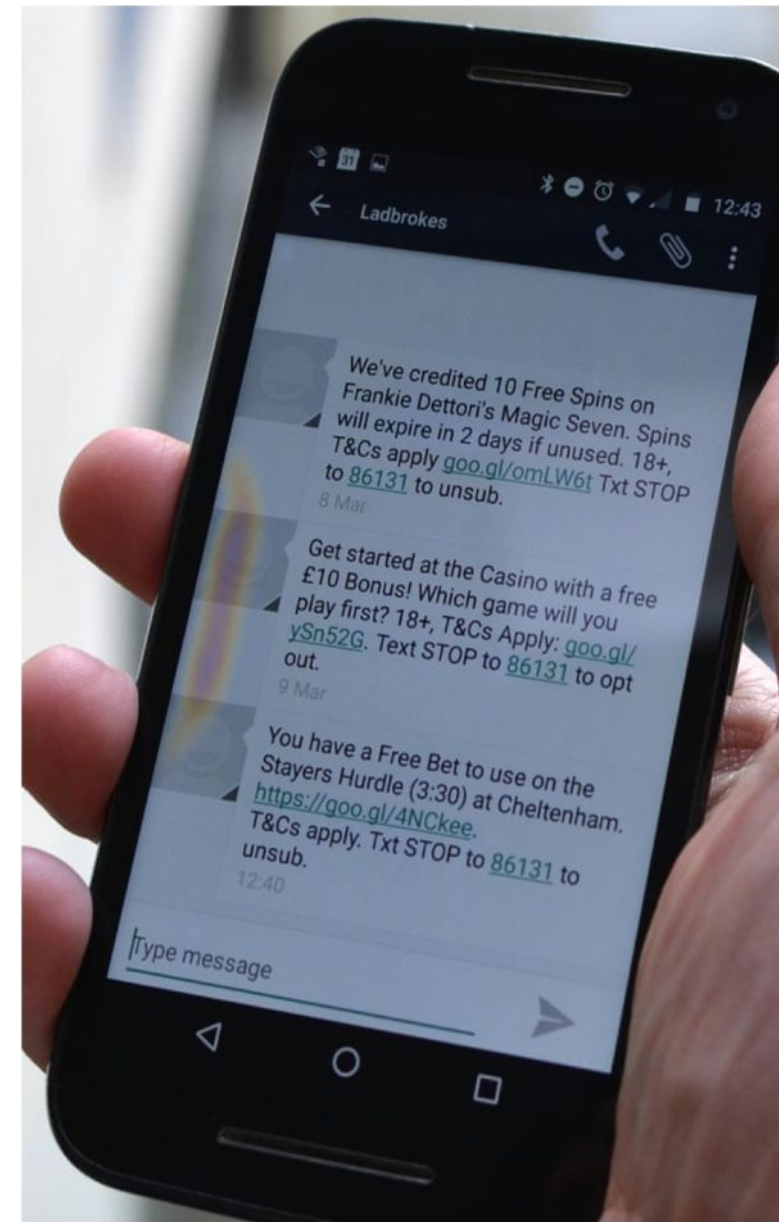
What interests/rights are at stake



- Privacy-data protection
 - to lawful and proportionate processing of personal data, to control processing
- Fair algorithmic treatment
 - not to be subject to unfair differentiated treatment
- Algorithmic transparency
 - to know why a certain algorithmic response or decision has been given
- Interest in fair algorithmic interaction
 - not to be misled or manipulated
- Interest in fair algorithmic (cognitive) competition
 - Interest in accessing data sources and algorithms that are available to big players

Focus on risks for consumers

- Unfair algorithmic decisions
- Unfair, excessive data processing/profiling
- Limitations on consumers' autonomy
- Discriminatory/unfair/ aggressive/exploitative advertising
- Filter bubbles/echo chambers
- Information asymmetry; arbitrary power
- Exploitation of vulnerabilities
- Opacity, inability to contest
- Risk of erroneous diagnoses, suggestions



Issue: Price discrimination

- AI enables sellers to figure out the highest price a client can pay
- Should there be price discrimination in consumer retail markets? For what good/service, on what grounds'?
 - cost structures, risks
 - spending capacity, needs, interests, vulnerabilities
- Normative standards:
 - Consumer protection law: is it unfair/discriminatory?
 - GDPR: is it an automated decision, is there a legitimate interest?
 - Competition law: does this affect competition?

What's the Deal?

Online travel brokers offer different prices depending on the customer's operating system, browser history and device.

Prices for overnight lodging


$$+ \text{not logged on} = +\$12$$

Not being logged in to these sites causes some users to be charged more.


$$+ \text{iOS} = -\$15$$

Using iOS saves Travelocity customers money.


$$+ \text{random users} = +10\%$$

These sites show higher-priced hotels to some users at random.

Source: Northeastern University College of Computer and Information Science, Personalization Research Group

The Wall Street Journal

Issue: Discrimination in algorithmic offers

- What if different people are offered different opportunities
 - Men getting better loans, women better insurance
 - People of certain ethnicity being more often refused opportunities
- What if the AI system has “innocently” learned to apply differential treatment
 - based on previous practice
 - to achieve a business purpose
- What legal solution
 - Data protection law: legitimate purpose, sensitive data, consent?
 - Consumer protection law/discrimination law: unacceptable discrimination?

Issue. Targeted advertising/malicious nudging

- AI can deliver each consumer the ads that most trigger purchasing, depending on:
 - how well they match consumer's needs and interest
 - how well they exploit consumer's vulnerabilities (e.g., predatory loans to people in difficulties, gambling offers to gambling addicts, drugs to depressed people)
- What legal solution?
 - When is it permissible? When a prevailing “legitimate interest”?
 - When does it “materially distort the economic behaviour of consumers”



Issue: Aggressive personalised advertising

- What if personalized advertising, to maximize clicks and revenues, exploit individual vulnerabilities (economic hardship, propensity to gambling, etc.)
 - This may be non-intentional, as the system may aim to use any factors correlated to clicks and purchases, regardless of the impact on consumer's interests
- Data protection law: Is exploiting vulnerabilities acceptable?
- Consumer protection law: does it count as “aggressive advertising”



Issue: Discrimination in Ad delivery

- Systems meant to address Ads and offers to those who are most probably interested in them may reproduce biases and discrimination
 - Offers for top jobs to male people
 - Offers for houses to those who match current ethnic ownership
- Maybe no data protection issue
- But is there a discrimination issue?



Issue: “Turn off” personalization?

- Personalised treatment of consumer can provide the with advantages, but also disadvantages
- Should the consumers know that they profiled, for what specific purposes?
- Should consumers be offered the option to trade and purchase anonymously?
- The GDPR allows consumer to withdraw consent and object to profiling. Is there a right to trade anonymously?



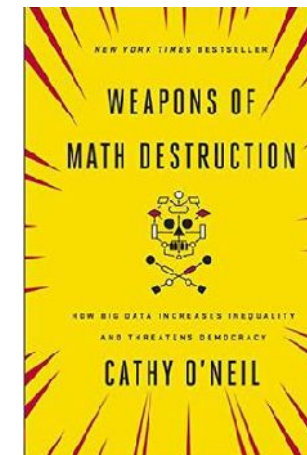
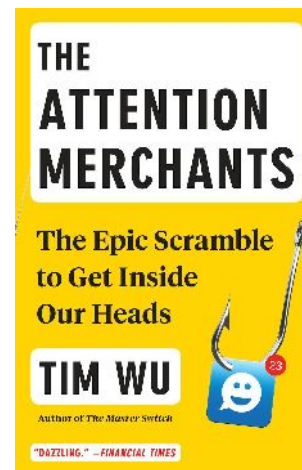
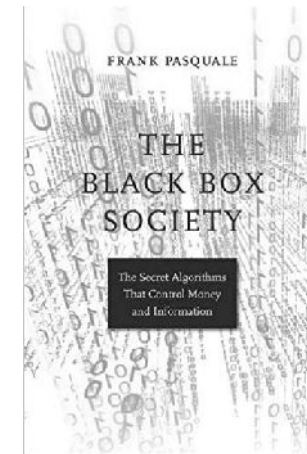
Issue. Rights to information/transparency

- Have (should have) consumers a right to know that they are offered personalised prices? Calculated in what way?
- Have (should have) consumers a right to know that their treatment is dependant on the tracking of their behaviour, and on consequent classifications/profiling? With what impacts?
- Data protection law: information obligations on data controllers
- Consumer protection law: information obligations on suppliers
- What about platforms?



Other issues to be addressed

- Right to procedural regularity
- Right to substantive legality
- Right to explanation/justification
- Right to have a human answer
- Right to be protected from abusive manipulation
- Liabilities for mistaken decisions/advice



Empowering civil society?

- Remedy the imbalance for AI-powered platforms and suppliers through citizen and consumer-empowering AI
 - Protection against unwanted monitoring
 - Support in detecting unfair/unlawful use of AI
 - Control over fairness of commercial practices
- Some examples:
 - Spam filters
 - Ad-blocking tools
 - Anti-tracking tools
 - Price comparison platforms
 - Detection of, and response to, violations of law and ethics
- Should consumer-empowering initiatives be supported and incentivised?



Detect, and respond to, violations of law and ethics

- AI can contribute to address online violations:
 - Unlawful and unethical behaviour on line is often unnoticed, rarely acted upon.
 - AI can facilitate cost-effective prevention/detection/reaction
- The AI-empowerment should be available to those who most need it:
 - Commercial actors, and resourceful individuals already use AI to apply the law
 - This opportunity should be open to citizens and civil society!



What about privacy policies and terms of service?

- Most online terms of service and privacy policies contain unlawful/unfair clauses, or miss relevant information:
 - Consumers agree but don't read
 - NGOs (consumer organisations) lack resources
- AI can contribute:
 - AI support to citizens and civil society to detect and react
 - An example: An automatic detector of unfair clauses in online contracts and privacy policies: <https://claudette.eui.eu/>



CLAUDETTE^{GDPR}
— Automatically Monitoring Privacy Policies —

Thanks for your attention

Giovanni Sartor, European University Institute / University of Bologna